

Bernal Jiménez Gutiérrez

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RESEARCH INTERESTS

My research interests lie in the intersection between **biology** and **AI**. On the one hand, I am passionate about how AI systems can accelerate biomedical research and directly improve people's lives. On the other hand, neurobiology is extremely inspiring to me and I strongly believe that human brain insights will help us overcome some of the current limitations in AI systems such as failures in reasoning, knowledge retrieval and continual learning.

EDUCATION

The Ohio State University

Ohio, USA

Ph.D. in Computer Science and Engineering

Aug 2019 - May 2025 (Expected)

Advisor: Yu Su

University of California at Berkeley

Berkeley, CA

B.A. in Applied Mathematics (Probability Theory Concentration)

Aug 2011 - December 2015

Minor in Physics

RESEARCH EXPERIENCE

National Library of Medicine

Bethesda, MD

Research Intern; PI: Olivier Bodenreider

May 2022 - August 2022

Mendel AI

San Jose, CA

AI Researcher Developer; Manager: Wael Salloum

June 2016 - June 2019

Redwood Center for Theoretical Neuroscience, UC Berkeley

Berkeley, CA

Research Assistant; PI: Michael DeWeese

July 2014 - March 2016

Language and Cognition Lab, UC Berkeley

Berkeley, CA

Research Assistant; PI: Terry Regier

August 2013 - December 2013

SELECTED PUBLICATIONS

Google Scholar

- HippoRAG: Neurobiologically Inspired Long-Term Memory for Large Language Models**
Bernal Jiménez Gutiérrez, Yiheng Shu, Yu Gu, Michihiro Yasunaga, Yu Su
Under Review, May 2024.
- Solving the Right Problem is Key for Translational NLP:
A Case Study in UMLS Vocabulary Insertion**
Bernal Jiménez Gutiérrez, Yuqing Mao, Vinh Nguyen, Kin Wah Fung, Yu Su, Olivier Bodenreider
Findings in EMNLP 2023, December 2023.
- Biomedical Language Models are Robust to Sub-optimal Tokenization**
Bernal Jiménez Gutiérrez, Huan Sun, Yu Su
BioNLP Workshop @ ACL 2023, July 2023.
- Aligning Instruction Tasks Unlocks Large Language Models as Zero-Shot Relation Extractors**
Kai Zhang, Bernal Jiménez Gutiérrez, and Yu Su
Findings of ACL, July 2023.
- Thinking about GPT-3 In-Context Learning for Biomedical IE? Think Again**
Bernal Jiménez Gutiérrez, Nikolas McNeal, Clay Washington, You Chen, Lang Li, Huan Sun, Yu Su
Findings in EMNLP 2022, December 2022.

6. **Clinical Phrase Mining with Language Models**

Kaushik Mani, Xiang Yue, Bernal Jiménez Gutiérrez, Yungui Huang, Simon M. Lin, Huan Sun
2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), December 2020.

7. **Document Classification for COVID-19 Literature**

Bernal Jiménez Gutiérrez, Juncheng Zeng, Dongdong Zhang, Ping Zhang, Yu Su
Findings in EMNLP 2020, November 2020.

8. **Clinical Reading Comprehension: A Thorough Analysis of the emrQA Dataset**

Xiang Yue, Bernal Jiménez Gutiérrez, Huan Sun
ACL 2020, July 2020.

9. **Improving Clinical Trial Participant Pre-Screening with Artificial Intelligence (AI): a Comparison of the Results of AI-Assisted vs. Standard Methods in Three Oncology Trials**

Denise Calaprice-Whitty, Karim Galil, Wael Salloum, Ashkon Zariv, Bernal Jiménez Gutiérrez
TIRS (Therapeutic Innovation and Regulatory Science), January 2020.

GRANTS

NIH R01: Machine Learning Drives Translational Drug Interaction and Pharmacogenetics Research

Role: Personnel (Contributed to framing & writing).

Grant: \$3,118,680. 2023-2027.

Impact Score from Review Panel: 10, top 1%

OSU TDAI Research Pilot Grant: Practical and Comprehensive Social Media Pharmacovigilance

Role: Personnel (Contributed to framing & writing).

Grant: \$50,000. 2021-2022.

SERVICES

PC Member/ External Reviewer:

EACL 2021

KDD 2021, 2022

EMNLP 2020, 2021, 2022

ACL 2021, 2023

AAAI 2024

ARR 2024

Area Chair:

ARR June 2024

UNREFEREED PUBLICATIONS

Learning sparse representations of visual stimuli from natural movies

Bernal Jiménez Gutiérrez, Jesse Livezey, Michael DeWeese

Computational and Systems Neuroscience (COSYNE) 2016, February 2016.